Fig. 1

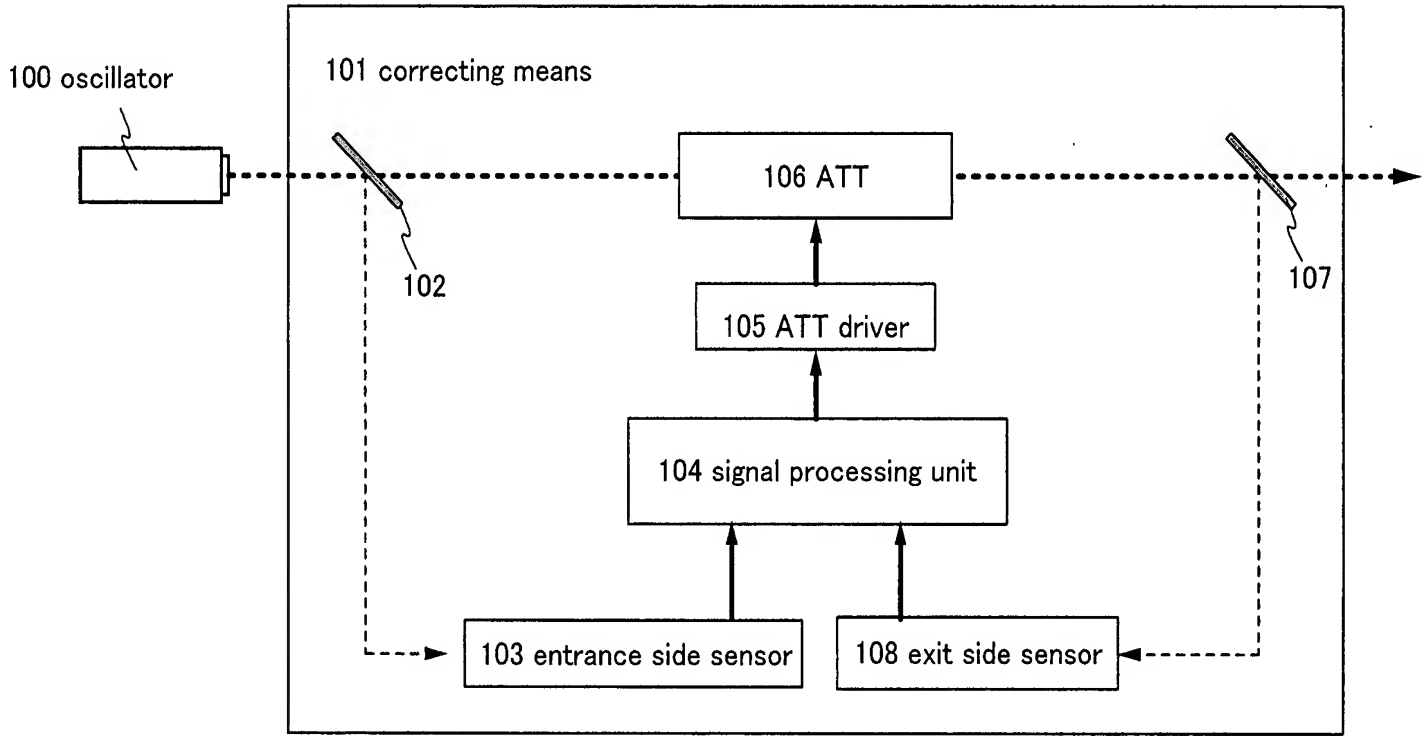

100 oscillator
101 correcting means
102
106 ATT
107
105 ATT driver
104 signal processing unit
103 entrance side sensor
108 exit side sensor

Fig. 2A oscillation frequency 10Hz

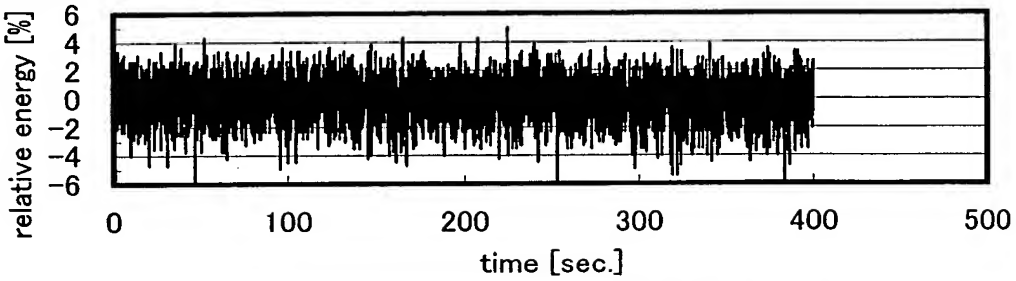


Fig. 2B oscillation frequency 20Hz

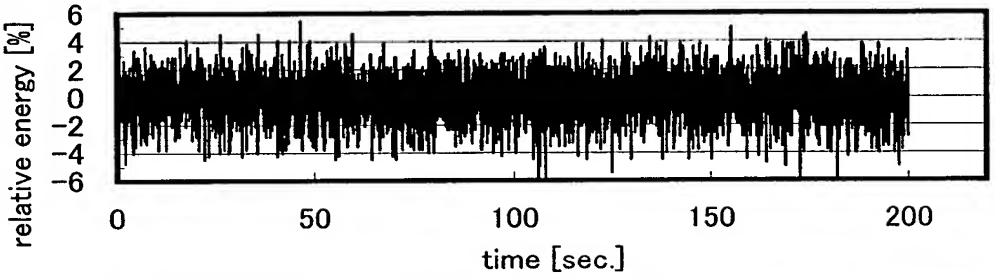


Fig. 2C oscillation frequency 30Hz

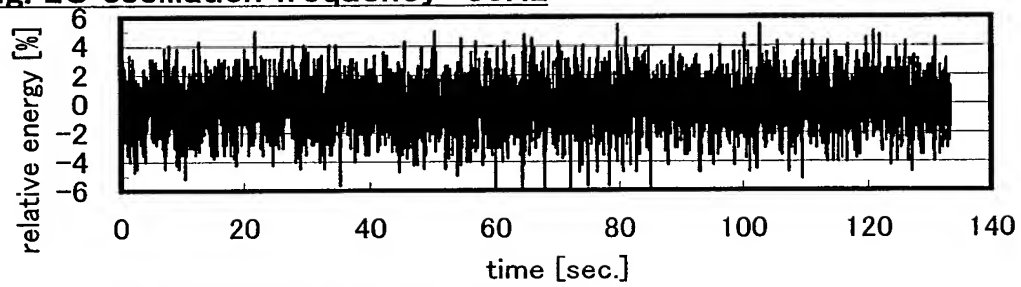


Fig. 2D oscillation frequency 40Hz

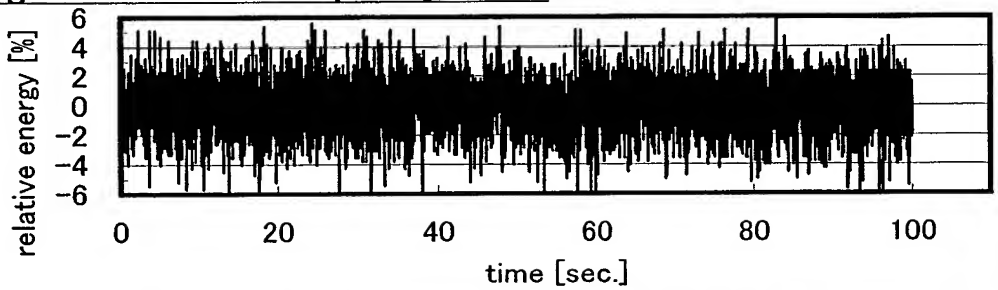


Fig. 2E oscillation frequency 50Hz

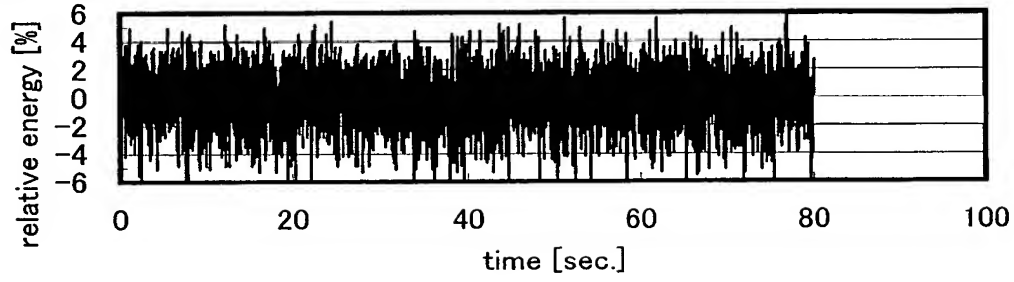


Fig. 3A oscillation frequency 10Hz (after Fourier transformation)

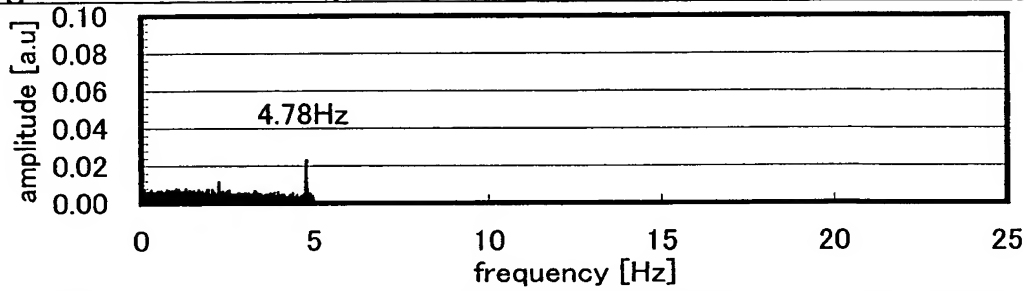


Fig. 3B oscillation frequency 20Hz (after Fourier transformation)

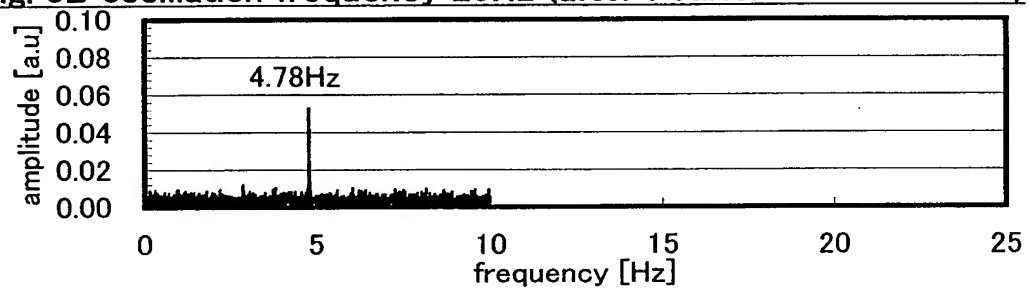


Fig. 3C oscillation frequency 30Hz (after Fourier transformation)

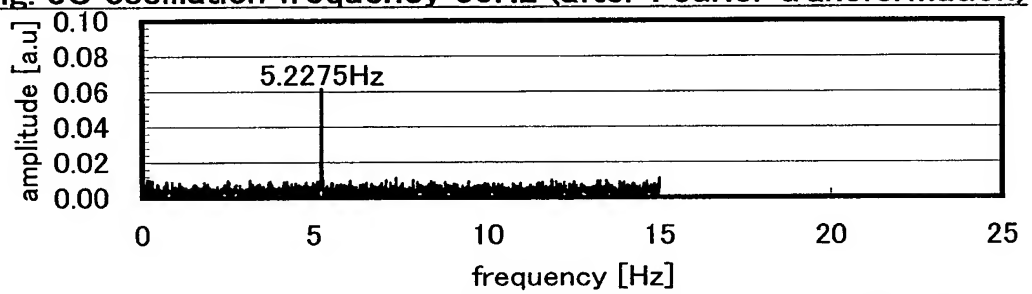


Fig. 3D oscillation frequency 40Hz (after Fourier transformation)

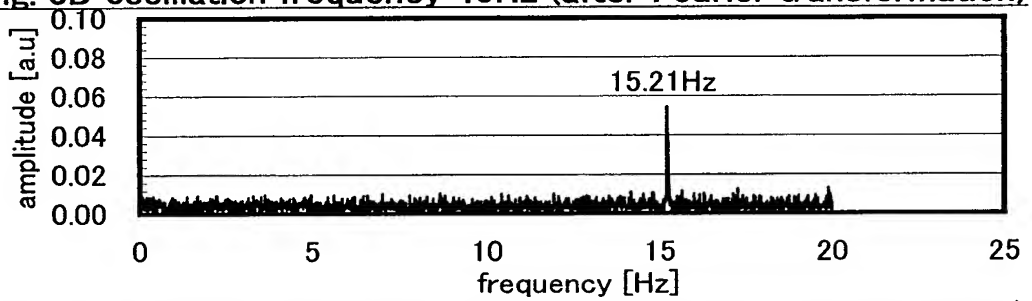


Fig. 3E oscillation frequency 50Hz (after Fourier transformation)

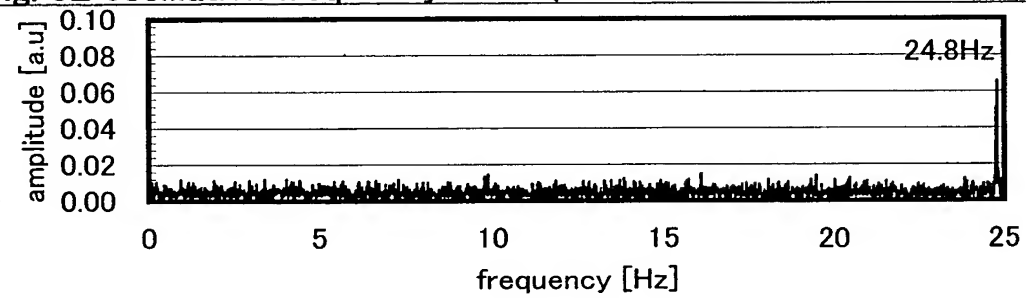


Fig. 4A fluctuation of output

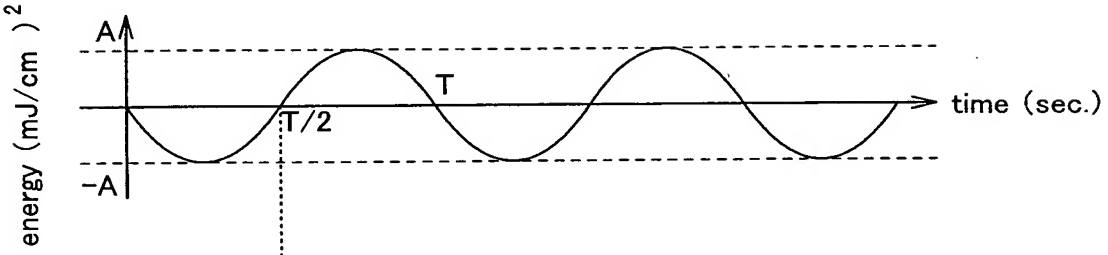


Fig. 4B fluctuation of transmiattance

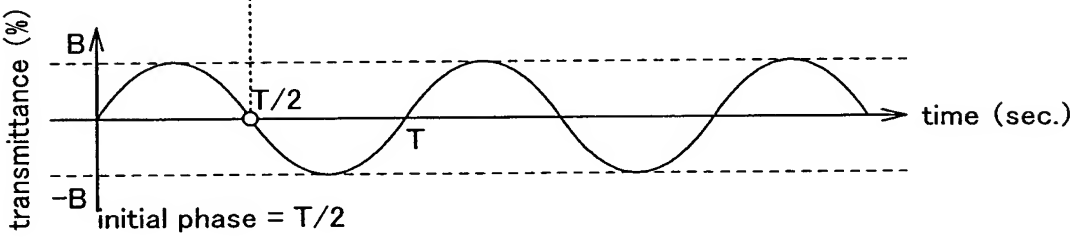


Fig. 5A

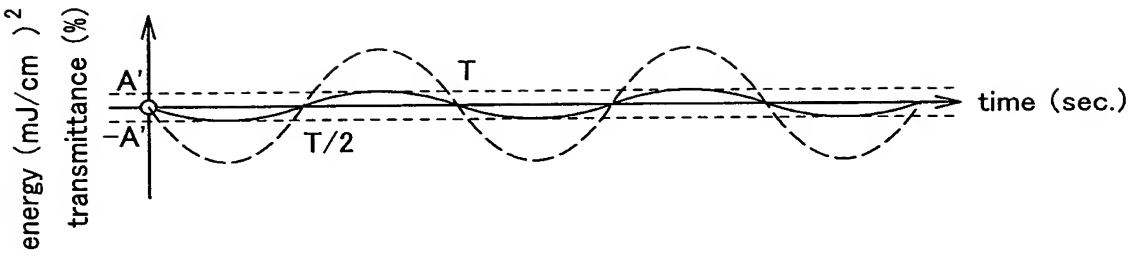


Fig. 5B initial phase $\neq \pi$

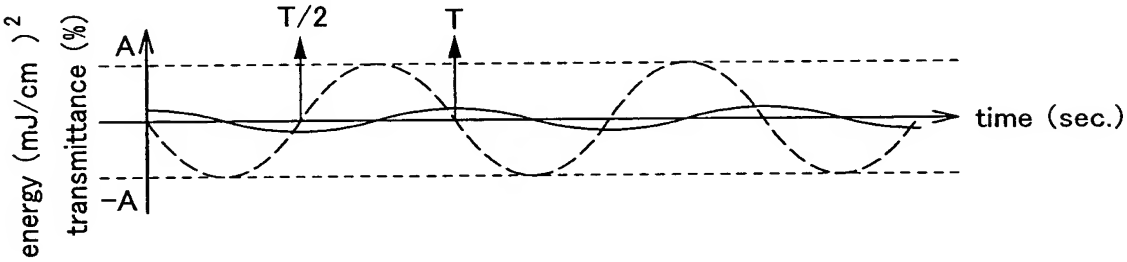


Fig. 6

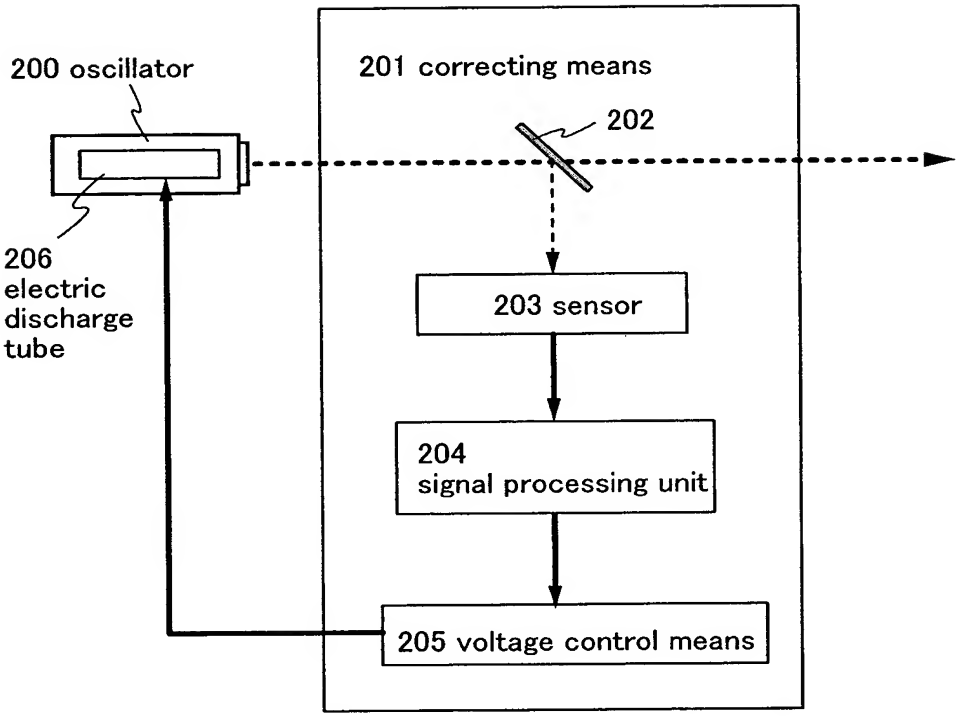

200 oscillator
201 correcting means
202
206
electric
discharge
tube
203 sensor
204
signal processing unit
205 voltage control means

Fig. 7

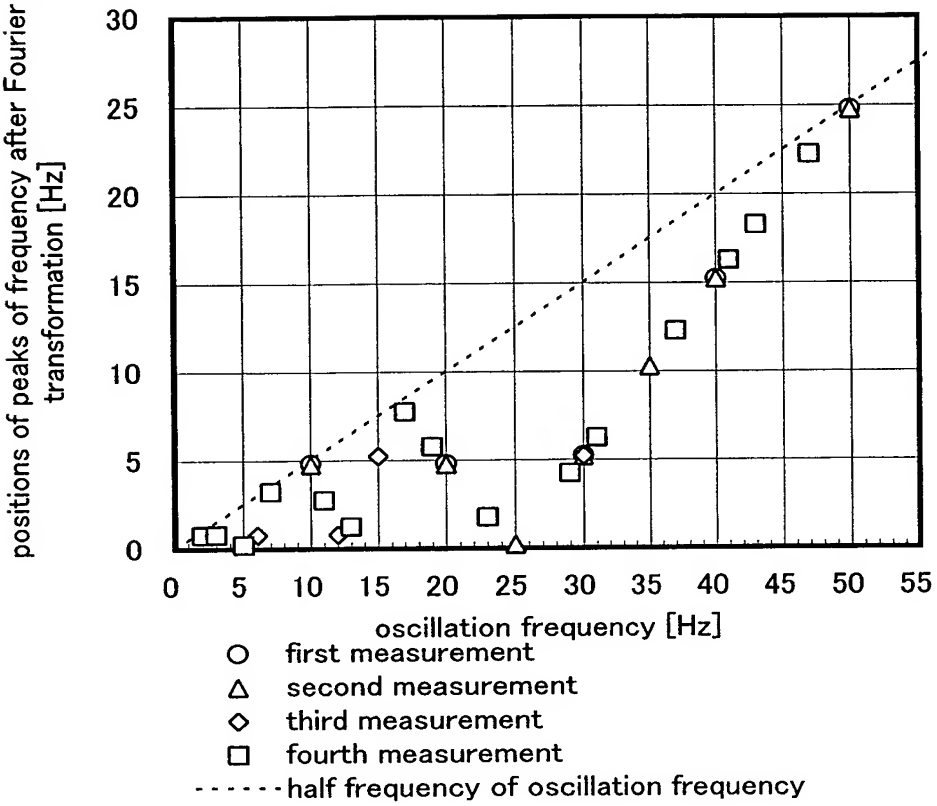

positions of peaks of frequency after Fourier transformation [Hz]
30
25
20
15
10
5
0
0 5 10 15 20 25 30 35 40 45 50 55
oscillation frequency [Hz]
first measurement
second measurement
third measurement
fourth measurement
half frequency of oscillation frequency

Fig. 8

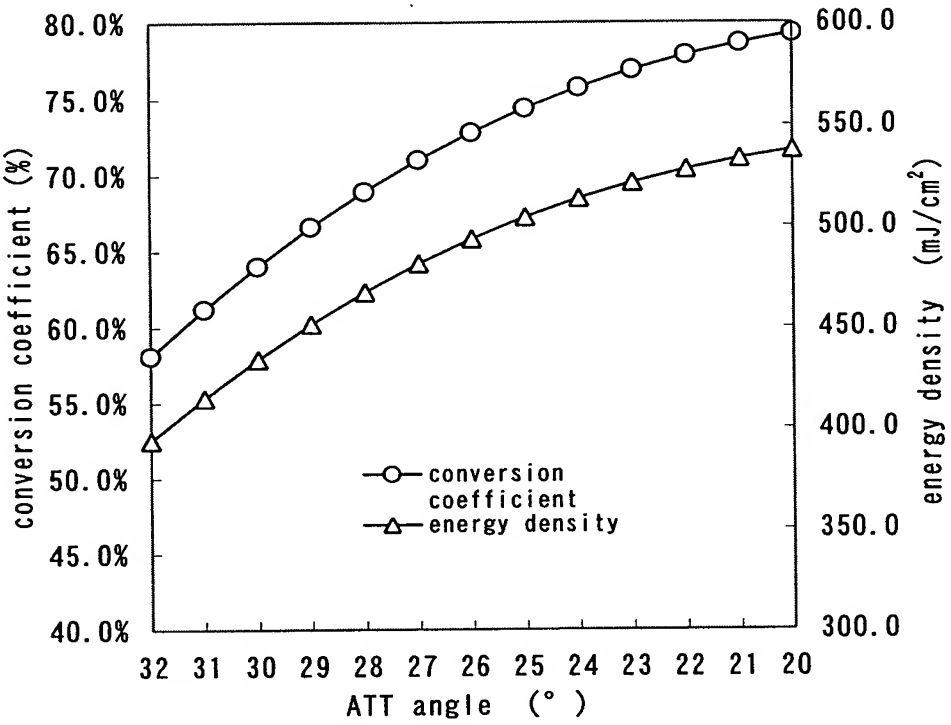

80.0%
75.0%
70.0%
65.0%
60.0%
55.0%
50.0%
45.0%
40.0%
conversion coefficient (%)
600.0
550.0
500.0
450.0
400.0
350.0
300.0
energy density (mJ/cm²)
conversion coefficient
energy density
32 31 30 29 28 27 26 25 24 23 22 21 20
ATT angle (°)

Fig. 9

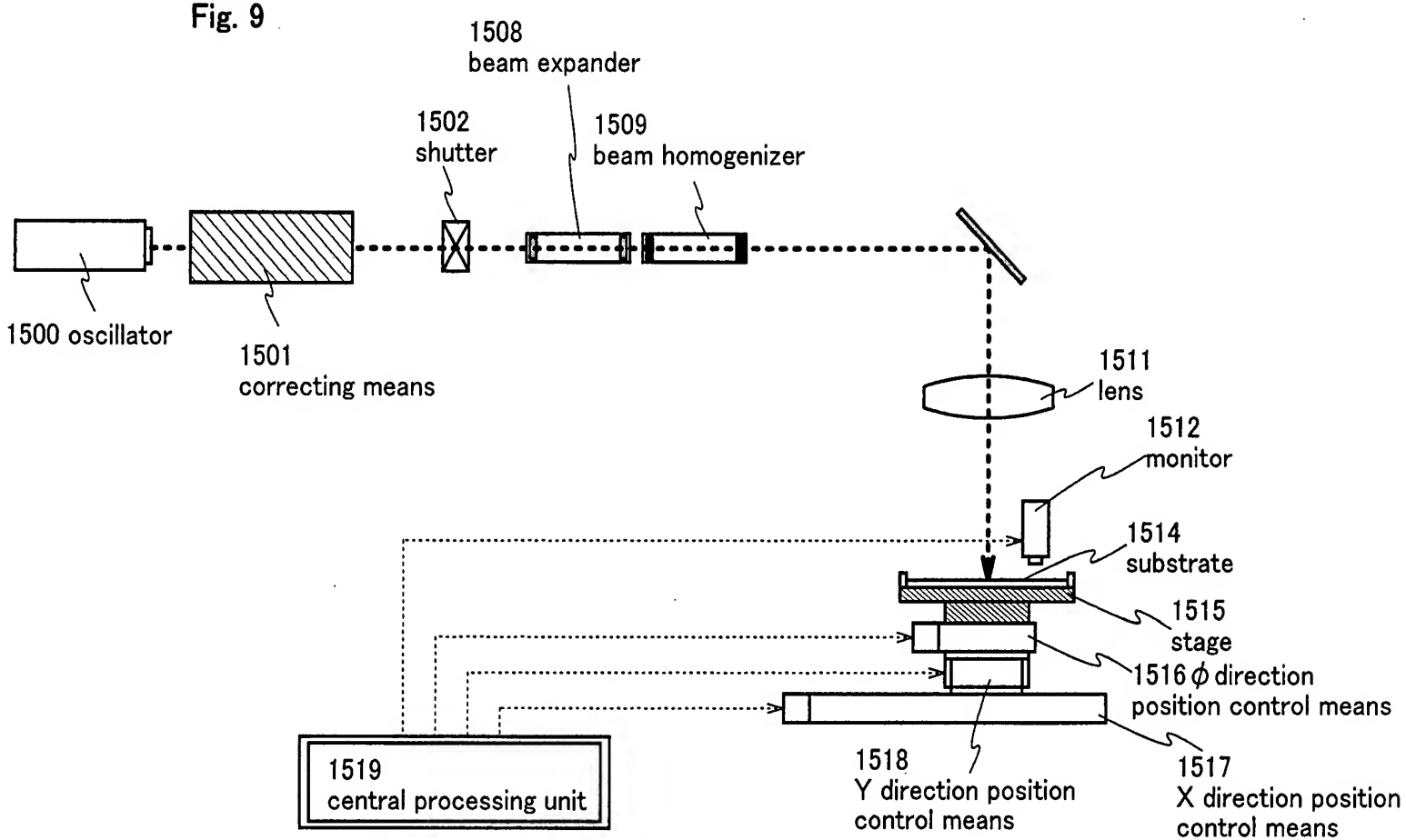

1508
beam expander
1502
shutter
1509
beam homogenizer
1500 oscillator
1501
correcting means
1511
lens
1512
monitor
1514
substrate
1515
stage
1516 ϕ direction
position control means
1519
central processing unit
1518
Y direction position
control means
1517
X direction position
control means

Fig. 10A before FFT

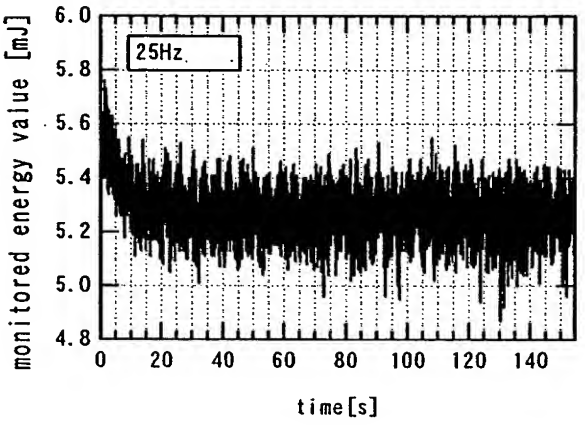


Fig. 10B after FFT

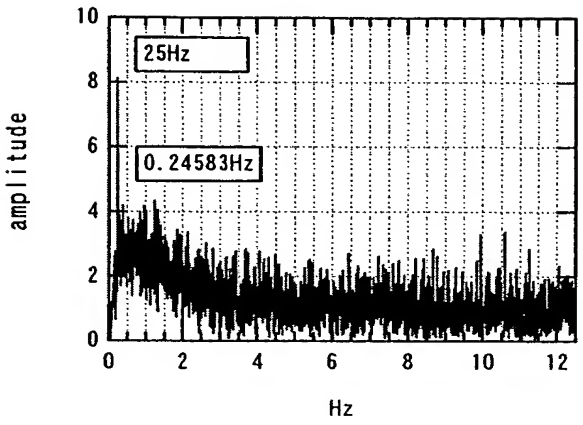


Fig. 11

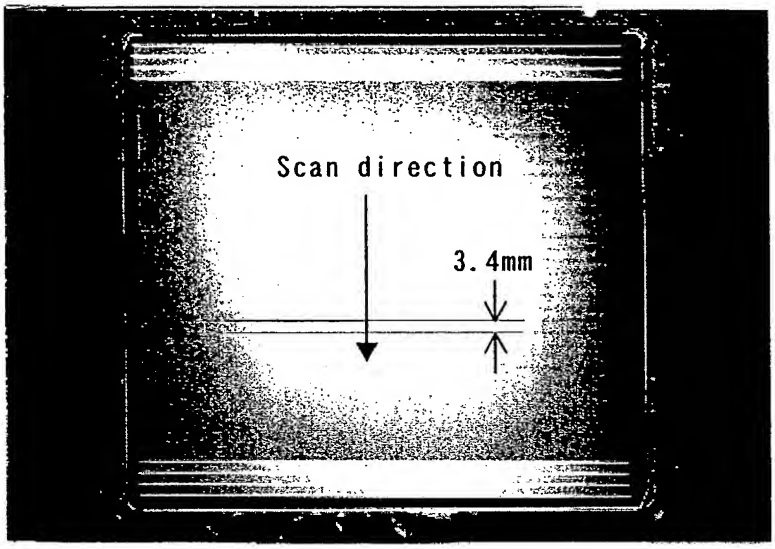


Fig. 12

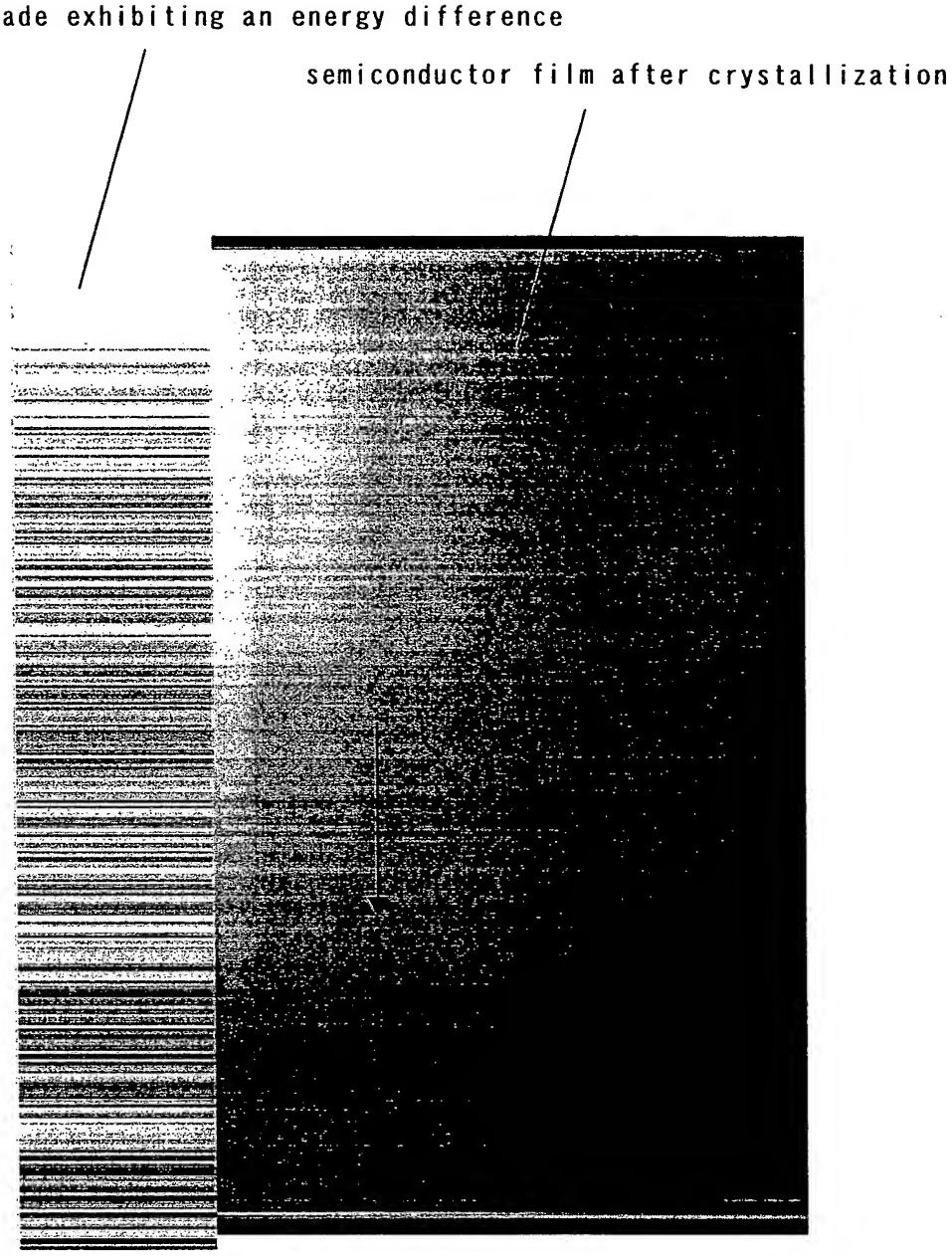
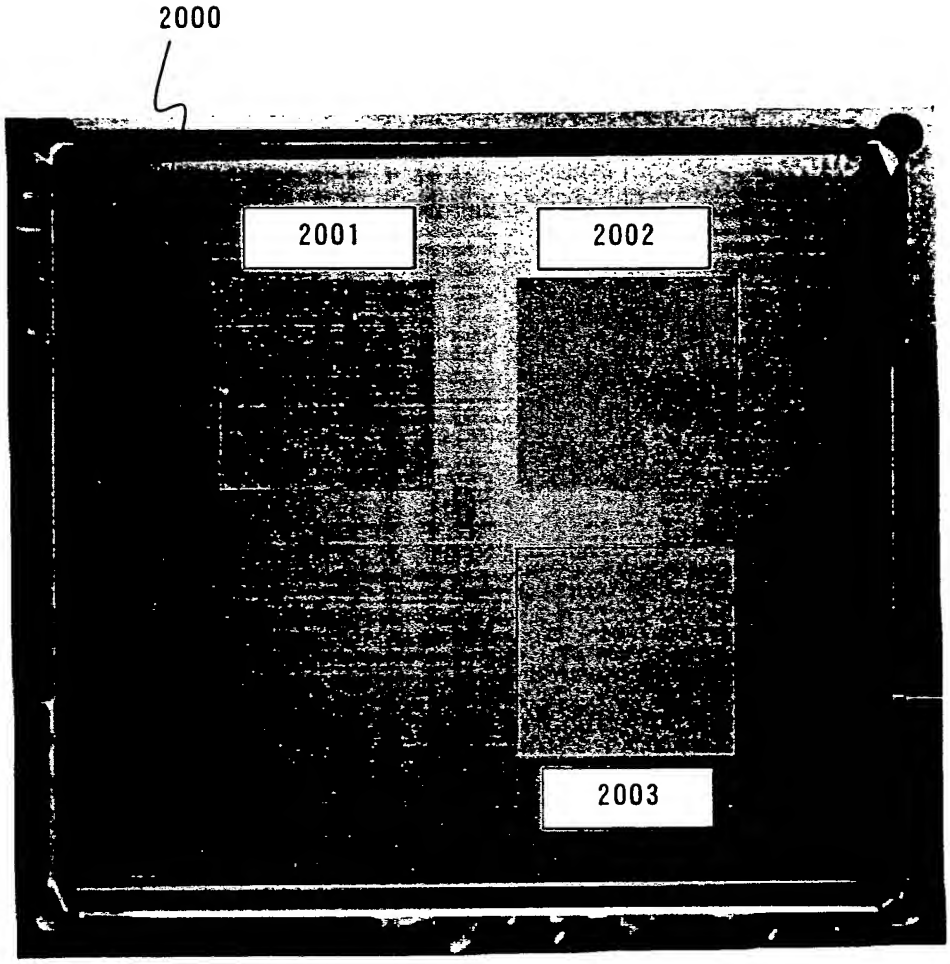
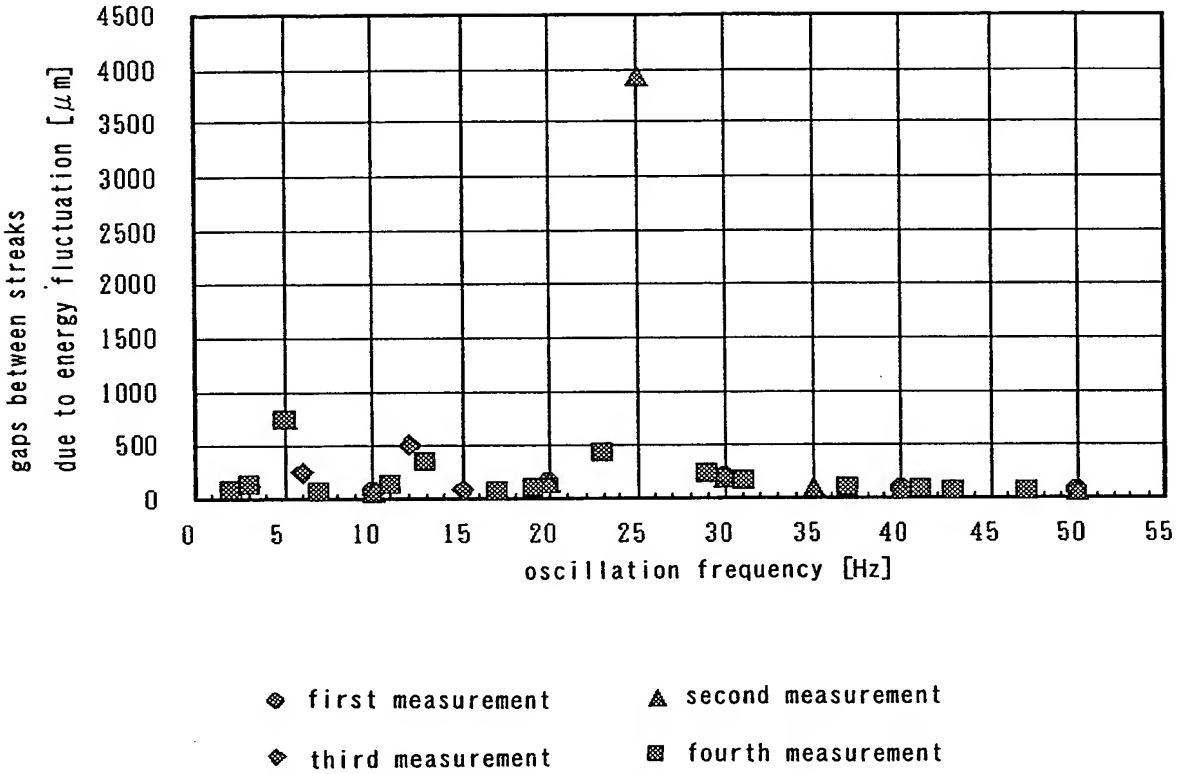

light and shade exhibiting an energy difference
semiconductor film after crystallization

Fig. 13



Difference between entire photograph and
panel display photograph after laser crystallization

Fig. 14


4500
4000
3500
3000
2500
2000
1500
1000
500
0
gaps between streaks due to energy fluctuation [μm]
0
5
10
15
20
25
30
35
40
45
50
55
oscillation frequency [Hz]
first measurement
second measurement
third measurement
fourth measurement